

## Inventory of *Doing What Works* (dww.ed.gov) Professional Development Materials

**Topic:** *National Math Panel: Critical Foundations for Algebra (MPR)*

TOPIC SUMMARY		
Title/Media Type	Who	Description
<i>National Mathematics Advisory Panel</i> Multimedia Overview 3:25 min		This overview explains the purpose and findings of the National Mathematics Advisory Panel and research-based recommendations for improving mathematics instruction. An explanation is provided on how teaching critical mathematics skills can better prepare students for entry into algebra.
<i>National Math Panel: Critical Foundations of Algebra</i> Multimedia Overview 5:56 min		This overview describes the findings of the National Mathematics Advisory Panel, the importance of teaching a coherent progression of key topics and critical skills to students in grades preK–8, and how to use 3 identified practices to improve mathematics instruction in the primary, intermediate, and middle grades to better prepare students for learning algebra.
<i>Critical Foundations for Algebra</i> Visual Diagram		This diagram illustrates 3 practices based on the recommendations in the National Mathematics Advisory Panel report. It can be used to engage teachers in discussion about their practices related to helping students develop proficiency in understanding key concepts and skills, providing comprehensive instruction and practice, and using formative assessment and differentiated instruction to guide instruction.
<i>Key Messages of the Panel Report</i> Expert Interview 8:13 min	Larry R. Faulkner, Ph.D.  Houston Endowment Chair	<ul style="list-style-type: none"> <li>• Dr. Faulkner discusses the Panel’s key recommendations and how the research findings relate to educators &amp; can inform their instructional practice.</li> <li>• Teachers should focus with more depth on critical skills, using benchmarks and formative assessments, and planning instruction for both struggling and gifted students.</li> <li>• There is a need for simultaneously teaching conceptual understanding, computational fluency, and problem-solving skills.</li> </ul>

TOPIC SUMMARY		
Title/Media Type	Who	Description
<i>Policy Implications of the Panel Report</i> Expert Interview 6:13 min	Tom Loveless, Ph.D.  Brookings Institution	<ul style="list-style-type: none"><li>• Dr. Loveless discusses the policy implications of the Panel’s findings at the federal, state, district, and school levels, including recommendations on state standards, curriculum frameworks, and assessments.</li><li>• There is importance in developing proficiency with fractions, and there needs to be more research on instructional practices.</li><li>• A cultural shift is needed in this country toward valuing mathematics and expecting that all students need to know mathematics.</li></ul>

**Topic:** *National Math Panel: Critical Foundations for Algebra (MPR)*

**Practice:** *Prepare students for algebra by developing a focused, coherent progression of key topics and skills leading to proficiency. (Mathematics Preparation for Algebra)*

### PRACTICE SUMMARY

Title/Media Type	Description
<i>Preparing Students for Success in Algebra</i> Multimedia Overview 8:02 min	<ul style="list-style-type: none"> <li>• Critical foundations are needed to prepare elementary and middle school students for later success in algebra.</li> <li>• Establish a focused and coherent mathematics curriculum that follows a logical progression of important skills and topics.</li> <li>• Students develop proficiency by understanding key concepts, mastering basic math facts, using standard algorithms, and solving problems.</li> <li>• Set appropriate benchmarks to build mastery.</li> </ul>

### LEARN WHAT WORKS

Title/Media Type	Who	Description
<i>The Critical Foundations</i> Expert Interview 8:49 min	Francis (Skip) Fennell, Ph.D. McDaniel College	<ul style="list-style-type: none"> <li>• Dr. Fennell provides an overview of the Conceptual Knowledge &amp; Skills Task Group and how it led to establishing critical foundations—what students need to know well to be successful in algebra.</li> <li>• An explanation of critical skills and examples is given, including a discussion of number sense and fractions.</li> <li>• It is important for students to develop fluency and automaticity with basic facts and algorithms, including whole numbers, fractions, and certain aspects of geometry and measurement.</li> <li>• Students should have a connection between understanding concepts, computational fluency, and problem solving.</li> <li>• Emphasize the importance of establishing a coherent progression of skill development.</li> </ul>
<i>Benchmarks as Guideposts</i> Expert Interview 5:33 min	Francis (Skip) Fennell, Ph.D. McDaniel College	<ul style="list-style-type: none"> <li>• Dr. Fennell describes the development of benchmarks and how schools can use these as guideposts in establishing standards, curriculum frameworks, and assessments focused on student mastery of foundational concepts and skills.</li> <li>• Benchmarks are to be interpreted flexibly in order to inform curriculum and instruction.</li> </ul>

LEARN WHAT WORKS		
Title/Media Type	Who	Description
<i>Professional Development for the Critical Foundations</i> Expert Interview 6:02 min	Francis (Skip) Fennell, Ph.D. McDaniel College	<ul style="list-style-type: none"> <li>• Dr. Fennell addresses the importance of focusing professional development on mathematics content &amp; pedagogy.</li> <li>• Focus professional development on providing teachers with a deep understanding of the critical foundations.</li> <li>• Teachers need to know &amp; understand the content they teach and the prerequisites for algebra.</li> <li>• Teachers should use instruction that fosters understanding, proficiency, and the ability to problem solve.</li> </ul>
<i>Teaching Fractions</i> Expert Interview 5:01 min	Hung-Hsi Wu, Ph.D. University of California, Berkeley	<ul style="list-style-type: none"> <li>• Dr. Wu discusses the importance of teaching fractions as abstract objects, familiarizing students with symbols, in preparation for algebra.</li> <li>• Gradually teach children to use symbols since they are foundational for learning algebra.</li> </ul>

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>District Perspective on Focused Curriculum</i> Video Interview 5:47 min	Ken Mathews Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>• A district mathematics supervisor explains a move toward a more focused K–12 mathematics curriculum and the philosophy of preparing students for STEM careers.</li> <li>• The district turned state grade-level expectations into cross-grade units that are vertically aligned.</li> <li>• Units allow students to dig into content and develop greater levels of mastery.</li> </ul>	No Sample Material
<i>Establishing a Cohesive Mathematics Curriculum</i> Audio Interview 4:33 min	Paul Louis Marie Schalke Twin Groves Middle School Buffalo Grove, IL	<ul style="list-style-type: none"> <li>• A school administrator and district administrator describe the process in achieving K-8 vertical alignment of the math curriculum.</li> <li>• Challenges included: finding time for collaboration across grade levels; giving up past teaching activities.</li> </ul>	<i>Power Standards for Middle School</i> —An excerpt from the district’s all-subject curriculum framework, which guides instruction and assessment. It includes standards organized by topic & course level at each grade level.

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Coherent Curriculum</i> Audio Interview 4:33 min	Dr. Larry Linnen Douglas County Schools Highlands Ranch, CO	<ul style="list-style-type: none"> <li>A K–12 Mathematics Coordinator describes the district’s focus on student mastery of high-priority skills and the development of Essential Learnings in math.</li> <li>Essential Learnings are the 3 skills students are expected to master at each grade level. An example is given related to fractions.</li> </ul>	No Sample Material
<i>A School Culture of Mathematics</i> Audio Interview 4:15 min	Kara Shepherd Mountain Ridge Middle School Highlands Ranch, CO	<ul style="list-style-type: none"> <li>A middle school principal describes building a culture of high performance.</li> <li>Staff development sessions embedded with reviewing math data, as well as weekly meetings for sharing strategies.</li> <li>The principal would conduct classroom observations &amp; debriefing with a math expert to support supervision of math instruction.</li> </ul>	No Sample Material
	Twin Groves Middle School Buffalo Groves, IL		<i>Unwrapping Mathematics Standards</i> —A staff resource developed to systematize the process for creating a common understanding of mathematics standards. It lists different types of cognitive demands and categories of knowledge to analyze standards.
	K. J. Clark Middle School of Math, Science, and Technology Chickasaw, AL		<i>Pacing Guides for Pre-Algebra and Algebra I</i> —Pacing guides used by middle school teachers that shows the standards and objectives to be taught each week of the school year and include major benchmark assessments that are built into the plan.

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Developing Number Sense in Kindergarten</i> Presentation 4:54 min	Kate Buckley Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>A kindergarten teacher discusses a lesson on decomposing whole numbers that is used to help students develop number sense.</li> <li>The teacher models strategies and provides small group practice for a game of finding addends of numbers up to 10.</li> <li>She observes groups to assess how students talk about the numbers, their accuracy, and solutions used by different students.</li> </ul>	<i>The Missing Partners Game</i> —Documentation sheets students use to record their answers during the lesson. Students decompose whole numbers to find addends of numbers up to 10. Instructions on how to play the game are included.
<i>Using Word Problems to Teach Number Sense</i> Presentation 4:34 min	Paul Salem Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>A 3rd-grade teacher demonstrates how a set of leveled word problems is used to check for students' understanding of number sense and basic operations.</li> <li>The teacher models strategies and uses questioning techniques during small group activities to scaffold student learning.</li> </ul>	<i>Differentiated Student Assignments</i> —Open-ended assignment sheets used to guide students' work in small groups by requiring them to develop a range of different solutions and justify them to their peers. To develop answers, students employ basic operations in sequence. The assignment sheets were developed at three levels of difficulty so that the problem levels are matched to students' skill level.
<i>Preparation for Algebra</i> Video Interview 7:27 min	Beth Klingher Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>A 7th-grade teacher illustrates which skills students need to master for an algebra course.</li> <li>To be good in number sense, a student should have: solid foundation in fractions, decimals, percents; ability to work with positive and negative integers; multiple ways to tackle open-ended problems.</li> <li>To move from the concrete to abstract, students must practice, make connections across problems, &amp; show problems in different ways.</li> <li>Student readiness for algebra is based on: ability to manipulate numbers in an equation; perform operations with integers; interpret a graph.</li> </ul>	No Sample Material

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Teaching Basic Computation Skills: A Fifth-Grade Challenge</i> Audio Interview 5:42 min	Meghan Little KIPP DC: Key Academy Washington, DC	<ul style="list-style-type: none"> <li>• A 5th-grade teacher teaches students the needed foundational skills to perform at grade level.</li> <li>• Have students “invent” or approach problems in different ways, not just through calculations.</li> <li>• Use visual representations and manipulatives to model &amp; practice.</li> <li>• Have students find &amp; explain mistakes in incorrect problems.</li> </ul>	No Sample Material
	Claxton Middle School Claxton, GA		<i>How Fast Can You Go?</i> —A worksheet that requires students to collect data about exercise, and then record, analyze, and plot the information on a graph.
<i>Using Multiple Representations to Teach Fractions</i> Slideshow w/ audio (10 slides)	Dr. Larry Linen Christine Livingston Cathleen Brooks Stacey Golenski Carol Amsberry Mountain Ridge Middle School Northridge Elementary School Highlands Ranch, CO	<ul style="list-style-type: none"> <li>• Elementary and middle school teachers illustrate different ways to use multiple representations of fractions.</li> <li>• Manipulatives, visual representations, and technology are used to develop students’ conceptual understanding and fluency with fractions.</li> <li>• Familiar materials, like egg cartons, can be effectively used across grades, moving from understanding parts of the whole to mixed fractions and computation.</li> </ul>	No Sample Material
<i>Teaching Fractions in Grade 2</i> Presentation 6:22 min	Kathy Lembo Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>• A 2nd-grade teacher describes a lesson used to review fractions, decimals, and percents and assess student understanding of fractions.</li> <li>• Revisit the concept of fractions in different ways—through portions of area, clock, money, measurement, unifex cubes.</li> </ul>	<i>Grade 2 Student Work: Writing About Fractions</i> —An assignment that asks students to write about fractions, develop story problems involving fractions, and solve multi-step problems. It includes examples of student explanations and the story problems they develop to demonstrate their understanding of fractions.



SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Subtracting a Fraction From a Whole</i> Presentation 6:14 min	Meghan Little KIPP DC: Key Academy Washington, DC	<ul style="list-style-type: none"> <li>A 5th-grade teacher builds students' conceptual and practical understanding of fractions.</li> <li>List steps completed for students to reflect on.</li> <li>Students complete an exit ticket problem to show mastery.</li> <li>Use math journals so students can analyze, solve, and explain a problem that's done incorrectly.</li> </ul>	<i>Lesson Plans: Subtracting a Fraction From a Whole</i> —A 5th-grade teacher's lesson plans for teaching students to subtract fractions from whole numbers. It includes the teacher's questions, notes, and demonstration and guided practice examples.  <i>Lesson Plans: Fifth-Grade Fractions</i> —A teacher's lesson plans that includes teacher's key questions to students and student worksheets. The first lesson is about identifying fractions on a number line; the second lesson is about writing equivalent fractions.
<i>Using a Number Line to Teach Fractions</i> Presentation 6:04 min	Christian Skalstad Madison Elementary School Spokane, WA	<ul style="list-style-type: none"> <li>A 3rd-grade teacher and an instructional math coach demonstrate the use of an open number line (ONL) for moving beyond counting.</li> <li>Students can use an ONL as a tool in manipulating whole numbers and fractions.</li> </ul>	<i>Frank's Fresh Farm Produce</i> —A word problem student groups can complete using a double number line. The sample includes photos of posters students developed to demonstrate their solutions.
	Claxton Middle School Claxton, GA		<i>Using the Number Line</i> —An assignment sheet given to 7th graders to help them understand fractions and decimals through the use of a number line.

DO WHAT WORKS	
Tool	Description
<i>Learning Together About Mathematics Preparation for Algebra</i>	A workshop that can be used to guide district and school mathematics leaders about the messages of the National Mathematics Advisory Panel report and consider implications for systemwide changes.
<i>Moving Toward the Focused Curriculum</i>	A tool to learn how three school districts have made changes and moved toward a more focused and coherent mathematics curriculum.
<i>Benchmark Review</i>	A tool to assess the degree of congruence between the benchmarks recommended by the National Mathematics Advisory Panel and the standards, curriculum, and assessments currently in use in the district.
Planning Templates	Comprehensive planning templates for working with districts and schools on improving the mathematics program.



**Topic:** *National Math Panel: Critical Foundations for Algebra (MPR)*

**Practice:** *Provide instruction that develops conceptual understanding, computational fluency, and problem-solving skills. (Comprehensive Instruction)*

### PRACTICE SUMMARY

Title/Media Type	Description
<i>Developing Conceptual Understanding, Fluency, and Problem Solving</i> Multimedia Overview 8:37 min	<ul style="list-style-type: none"> <li>This overview shows the value of simultaneously teaching conceptual understanding, computational fluency, and problem solving and the interrelations between them.</li> <li>Developing fluency with basic arithmetic facts is key to developing conceptual understanding of mathematics.</li> <li>Practice distributed over time is important in developing automaticity and improving fluency, including the use of technology-based tools.</li> <li>There is a relationship between students' beliefs about learning and mathematics performance and the need for students to believe that efforts matter.</li> </ul>

### LEARN WHAT WORKS

Title/Media Type	Who	Description
<i>Simultaneously Teaching Conceptual Understanding, Computational Fluency, and Problem-Solving Skills</i> Expert Interview 7:08 min	Joan Ferrini-Mundy, Ph.D. National Science Foundation & Michigan State University	<ul style="list-style-type: none"> <li>Dr. Ferrini-Mundy discusses the interrelations between conceptual understanding, computational fluency, and problem-solving skills, and how teachers can develop lesson plans to integrate these areas into their instruction.</li> <li>She provides suggestions on how schools and districts can support teachers.</li> <li>Student beliefs impact their effort on mathematics achievement.</li> </ul>
<i>Blending Teacher-Directed and Student-Centered Approaches in Mathematics Instruction</i> Expert Interview 7:44 min	Joan Ferrini-Mundy, Ph.D. National Science Foundation & Michigan State University	<ul style="list-style-type: none"> <li>Dr. Ferrini-Mundy discusses teacher-directed and student-centered instruction, and the importance of blending these instructional approaches in teaching mathematics. Cooperative learning and peer-assisted instruction illustrate a blend of teacher-directed and student-centered instruction.</li> <li>Teachers' professional wisdom and judgment in making decisions about classroom instruction is important.</li> <li>Bringing teachers together to learn, observe, reflect, and share wisdom with each other is valued.</li> </ul>

## LEARN WHAT WORKS

Title/Media Type	Who	Description
<i>Instructional Strategies</i> Expert Interview 4:04 min	Joan Ferrini-Mundy, Ph.D. National Science Foundation & Michigan State University	<ul style="list-style-type: none"> <li>Dr. Ferrini-Mundy discusses instructional strategies and their potential for improving mathematics achievement, including the use of real-world problems, calculators, and computer-assisted instruction.</li> <li>She provides a brief summary of the research findings related to technology.</li> </ul>

## SEE HOW IT WORKS

Title/Media Type	Who	Description	Sample Material
<i>An Administrator's Perspective on Mathematics Instruction</i> Video Interview 4:49 min	Brent Perdue Madison Elementary School Spokane, WA	<ul style="list-style-type: none"> <li>An elementary school principal discusses the role of number sense in transitioning to algebra.</li> <li>Identify whether a student has automatic recall of basic facts.</li> <li>Focus on helping students develop strategies.</li> <li>Focusing only on procedures, without conceptual understanding, is a problem.</li> </ul>	No Sample Material
<i>Specialist Teachers Provide Practice in Mathematics</i> Video Interview 9:58 min	Kathy Mirando Susan Arnold Ann Page Judy Cavanaugh Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>Four specialist teachers describe integrating mathematics concepts and practice opportunities into their subject areas, including: PE, music, visual arts.</li> <li>PE-math activities include: math tag for fluency practice, ratios and percentages in basketball shooting, perimeter and area of fields.</li> <li>A music teacher connects note values to fractions.</li> <li>In visual arts, students work on a project moving between 2-D and 3-D, building a model, and then enlarging it.</li> </ul>	<i>Physical Education Lessons for Mathematics Practice</i> —Lesson plans compiled by PE teachers in grades 3–8 that address the district's mathematics standards and integrate math concepts and practice opportunities into class. A template teachers use to document their lessons is also included.  <i>Significant Tasks</i> —A 7th-grade math lesson plan related to numerical and proportional reasoning. It addresses one of the district's major math units, is keyed to specific standards, and contains directions, necessary materials, and a scoring rubric and answer key.

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Messages on Effort and Persistence</i> Slideshow w/ audio (8 slides)	Brent Perdue Rita Hadley Joanne Hagen  Madison Elementary School  Spokane, WA	<ul style="list-style-type: none"> <li>Elementary principal and teachers demonstrate strategies to encourage students to apply effort in learning mathematics.</li> <li>Encouraging a variety of problem-solving methods supports persistence.</li> <li>Communicate to parents the importance of effort and persistence.</li> </ul>	<i>Principal's Message to Parents About Effort—</i> Samples of a weekly newsletter to parents that addresses issues related to effort and persistence.
<i>Stamina, Effort, and Success</i> Slideshow w/ audio (10 slides)	Elizabeth Morris Kara Shepherd Cathleen Brooks Maggie Torley Ramona Ivie Julie Weber  Mountain Ridge Middle School  Northridge Elementary School  Highlands Ranch, CO	<ul style="list-style-type: none"> <li>Middle school administrators, teachers, and a parent describe systems that build students' stamina for working on mathematics challenges.</li> <li>Place responsibility on students for seeking the support they need.</li> <li>Structure explicit instruction and guided practice.</li> <li>Establish a culture of "no failure."</li> </ul>	No Sample Material

DO WHAT WORKS	
Tool	Description
<i>Learning Together About Comprehensive Instruction</i>	An activity to engage teachers in a discussion on common issues that arise in mathematics instruction, including progression of topics, real-world problems, use of technology and calculators, and the role of self-efficacy.
<i>Reflecting on Strategies to Build Effort and Persistence</i>	A self-reflection tool to identify ways in which teachers are shaping students' attitudes about the importance of effort in learning mathematics.
<i>Comprehensive Instruction Observation and Feedback</i>	A classroom observation tool that highlights the instructional practices in the National Mathematics Advisory Panel report. This tool can be used to structure discussions during feedback conferences.
Planning Templates	Comprehensive planning templates for working with districts and schools on improving the mathematics program.

**Topic:** *National Math Panel: Critical Foundations for Algebra (MPR)*

**Practice:** *Use a mastery framework to guide instructional planning and student assessment. (Mastery Framework)*

### PRACTICE SUMMARY

Title/Media Type	Description
<i>Developing a Mastery Framework</i> Multimedia Overview 8:27 min	<ul style="list-style-type: none"> <li>This overview describes components of a mastery framework, including clearly stated benchmarks, regular and ongoing formative assessments, and differentiated instruction to address all students' needs.</li> <li>Benchmarks are used to sequence concepts and skills to be mastered across grade levels.</li> <li>Teachers use formative assessment to check student assessment, and to identify needs and adapt instruction.</li> </ul>

### LEARN WHAT WORKS

Title/Media Type	Who	Description
<i>Formative Assessment</i> Expert Interview 8:26 min	Lynn S. Fuchs, Ph.D. Vanderbilt University	<ul style="list-style-type: none"> <li>Dr. Fuchs explains the two purposes and types of formative assessment, addresses issues with the different approaches, and contrasts two types of objective formative assessment.</li> <li>She discusses optimal ways for teachers to use assessment data.</li> <li>Computers are useful in managing systematic assessment data.</li> <li>Teachers need professional development to learn how to implement a formative assessment system, interpret data, and connect the results to instructional decision-making.</li> </ul>
<i>Research-Based Instructional Programs</i> Expert Interview 8:38 min	Lynn S. Fuchs, Ph.D. Vanderbilt University	<ul style="list-style-type: none"> <li>Dr. Fuchs explains important program design features, such as providing clear explanations at the beginning of a topic and examples of how to do this.</li> <li>Providing conceptually rich instruction, with multiple representations and manipulatives, is important.</li> <li>Drill and practice is essential in developing fluency in foundational skills.</li> </ul>

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Benchmarks in the National Mathematics Panel Report</i> Slideshow w/o audio (11 slides)	Various	<ul style="list-style-type: none"> <li>An introduction to the pre-K–8 benchmarks students need to achieve to be prepared for algebra recommended by the National Mathematics Advisory Panel.</li> <li>Definitions and guidelines on how to use the benchmarks are presented.</li> </ul>	No Sample Material
<i>Using Benchmarks to Guide Assessment</i> Audio Interview 4:34 min	Sharon Leonard Rita Hadley Denny Abel Christian Skalsstad Jennifer Wilson  Madison Elementary Spokane, WA	<ul style="list-style-type: none"> <li>Elementary teachers discuss using an assessment grid for grouping for instruction and reteaching.</li> <li>The grid helps organize information about student mastery of important skills.</li> <li>Students can compare their results on formative assessments with final assessments.</li> </ul>	<i>Assessment Grids</i> —Used by elementary teachers to display and organize the results of assessments for each mathematics unit. Included are examples of key skills and how they are assessed for a year’s units for grades 2–6.
<i>Linking Formative Assessment to Benchmarks</i> Audio Interview 5:57 min	Cathy Alland Paul Louis Wendy Loeb  Twin Groves Middle School Buffalo Grove, IL	<ul style="list-style-type: none"> <li>2 middle school math teachers and the district director of curriculum describe using formative assessment based on a shared understanding of mathematics standards.</li> <li>Formative assessments are used to plan instruction.</li> <li>Sharing assessment data within and across grade levels is important.</li> </ul>	No Sample Material
<i>Reviewing Student Work</i> Video Interview 7:22 min	Brent Perdue Ellen Rush JoAnne Hagan Eileen Mabey Sharon Leonard  Madison Elementary Spokane, WA	<ul style="list-style-type: none"> <li>Elementary school teachers and a principal use a protocol to review student work.</li> <li>From student work, teachers speculate student strategies, identify what student knows, and determine what content knowledge student should work on next.</li> </ul>	<i>Protocol for Reviewing Student Work</i> —A protocol to guide discussions about elementary student work in mathematics. It includes: guidelines for reviewing student work, a worksheet to document strengths and interventions, and 2 completed examples of reviewed student work.

SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Formative Assessment on a Daily Basis</i> Audio Interview 5:53 min	Melissa Gardner Claxton Middle School Claxton, GA	<ul style="list-style-type: none"> <li>A middle school math teacher describes integrating informal formative assessments into a lesson.</li> <li>6 elements of an effective math lesson: drill, review, instruction, processing, application, and homework.</li> <li>Using “ticket out the door” closure identifies students who need additional review.</li> <li>Philosophy that encourages students to correct 100% of their errors.</li> </ul>	<i>Six Elements of an Effective Math Lesson</i> —A middle school handout used by teachers to organize and deliver math lessons, including components such as drill, review, instruction, processing, application, and homework.
<i>Helping Teachers Use Data</i> Video Interview 5:28 min	Pat Morgan Worthington Hooker School New Haven, CT	<ul style="list-style-type: none"> <li>The district’s coordinator of instructional coaches describes how staff have been trained to analyze and use data from benchmark and formative assessments.</li> <li>Teachers are empowered to lead the data team process in their school.</li> <li>Once teachers review test results to identify strands, weaknesses, and commonalities across classes, they agree on specific strategies they will implement in their classroom.</li> </ul>	<i>Data Review Process</i> —A middle school-completed protocol showing the steps that teachers follow to analyze data from assessments. It includes examples for several different courses and a cover sheet, which is the overall meeting record.
<i>Using Informal Classroom Assessment With Struggling Students</i> Audio Interview 6:15 min	Terri Porto Twin Groves Middle School Buffalo Grove, IL	<ul style="list-style-type: none"> <li>A middle school math teacher discusses the purpose and types of formative assessments used during lessons.</li> <li>Informal observations are used to check for student understanding.</li> <li>Various instructional methods are used in designing lessons for struggling students.</li> </ul>	No Sample Material



SEE HOW IT WORKS			
Title/Media Type	Who	Description	Sample Material
<i>Interventions for Struggling Students</i> Audio Interview 5:14 min	Bootsie Threatte Claxton Middle School Claxton, GA	<ul style="list-style-type: none"> <li>The math department chair describes intervention options for struggling students.</li> <li>Prescriptive folders are prepared for each student of target skills practice.</li> <li>A four-tiered pyramid of interventions is used to assist struggling students.</li> </ul>	No Sample Material
<i>Bridging the Gap With a Range of Student Skills</i> Audio Interview 5:25 min	Marie Pelosi Heather Postlethwait Longfellow Middle School Falls Church, VA	<ul style="list-style-type: none"> <li>2 middle school math teachers explain using additional course work and after-school supports to meet entering students' needs.</li> <li>Struggling students participate in Power Math, remediation program that offers differentiated instruction.</li> <li>Students demonstrate mastery by explaining concepts to other students.</li> </ul>	<i>Description of Power Mathematics</i> —A handout that describes a mathematics support course for struggling students. It describes instructional techniques, classroom environment, and management strategies.  <i>Grade 7–8 Mathematics Course Descriptions</i> —A handout that describes 7th–8th-grade math courses. The descriptions include the topics covered, benchmarks, and special program for struggling students and gifted students.
<i>Engaging and Encouraging Students</i> Audio Interview 4:13 min	Stephanie Mackiewicz Claxton Middle School Claxton, GA	<ul style="list-style-type: none"> <li>A middle school teacher uses manipulatives and activities to motivate struggling students.</li> <li>Peer tutoring helps both students involved.</li> <li>The praise-prompt-leave strategy builds student confidence.</li> </ul>	No Sample Material
<i>Acceleration for Mathematically Gifted Students</i> Audio Interview 5:24 min	Vern Williams Longfellow Middle School Falls Church, VA	<ul style="list-style-type: none"> <li>A middle school teacher describes accelerated mathematics courses for gifted students.</li> <li>Students are identified for the program based on recommendations, rating scale, &amp; test data.</li> <li>By having students explain their work to their teacher and peers, they learn many ways to solve a problem.</li> </ul>	<i>Curriculum Guide for Gifted Students</i> —A 7th-grade curriculum guide for gifted students. Topics covered include: Cantorian Set Theory; Geometry; basic Calculus.

<b>DO WHAT WORKS</b>	
<b>Tool</b>	<b>Description</b>
<i>Learning Together About Formative Assessment</i>	A workshop activity that can be used to teach the importance of formative assessments, types of formal and informal formative assessments, and ways to use formative assessment effectively.
<i>The Components of a Mastery Framework</i>	A checklist to help district and school staff understand the key components of a mastery framework and assess their own progress towards putting these components in place.
<i>Self-Assessment Inventory: Working With Struggling Students</i>	A self-assessment tool to help teachers identify whether or not they are implementing all the practices that might help students who are struggling in mathematics.
<i>Working With Mathematically Gifted Students: School Inventory of Practices</i>	A self-assessment tool to help school mathematics leaders and teachers to think about how well they are implementing practices to engage and challenge students who are gifted in mathematics.
Planning Templates	Comprehensive planning templates for working with districts and schools on improving the mathematics program.